

## CLAIMS

1. A method for producing a cellulose fiber comprising the steps of:

(A) preparing an NMMO solution by dissolving a cellulose powder in concentrated liquid N-methylmorpholine-N-oxide (NMMO) to a small amount of 0.01 to 5% by weight;

(B) introducing the NMMO solution having a small amount of the cellulose powder dissolved and cellulose powder into a kneader, mixing, swelling and partially dissolving the cellulose in the kneader without reducing the pressure to produce a paste, and then feeding the paste to an extruder to obtain a homogenized cellulose solution;

(C) spinning the cellulose solution by extrusion through a spinning nozzle, and then solidifying the spun cellulose solution which has reached a solidifying bath through an air bed to obtain a multi-filament; and

(D) washing, drying, oil-treating and winding the obtained multi-filament.

2. The method for producing a cellulose fiber according to claim 1, wherein the liquid NMMO having a small amount of cellulose dissolved is maintained at a temperature of 50°C to 95°C in the step (A).

3. The method for producing a cellulose fiber according to claim 1, wherein the kneader into which the NMMO solution having a small amount of cellulose dissolved are introduced is maintained at 50°C to 95°C in the step (B).

4. The method for producing a cellulose fiber according to claim 1, wherein the final cellulose solution prepared by dissolution in the extruder in the step (B) contains

cellulose at a concentration of 5 to 20% by weight with respect to the total weight of the solution.

5. The method for producing a cellulose fiber according  
5 to claim 1, wherein the NMMO solution at the step (A) contains moisture in an amount of 10 to 18% by weight with respect to the total weight of the solution.

6. The method for producing a cellulose fiber according  
10 to claim 1, wherein the liquid NMMO having a small amount of cellulose dissolved is supplied to the kneader while being maintained at a temperature of 50°C to 95°C in the step (B).

15 7. The method for producing a cellulose fiber according to claim 1, wherein the cellulose powder at the step (A) or step (B) is mixed with other polymer materials.